WE CLAIM:

1. A method for testing each parallel optical communication channel in an N-channel parallel optical communication transmitter, said method comprising:

transmitting, simultaneously on different channels, at least one of external data and test signals to a multiplexer in each channel of said N-channel parallel optical communication transmitter;

detecting whether said external data signals include data signals having a valid common mode voltage level; and

selecting either of said external data signals or said test signals for transmitting from said multiplexer to a laser driver.

2. A method according to Claim 1, wherein said test signals are generated and transmitted by a built-in self test (BIST) generator.

3. A method according to Claim 1, wherein a data receiver that is provided in parallel with a signal detector buffers said external data signals, wherein further a BIST buffer buffers said test signals, and wherein further said signal detector performs said detecting of whether said

external data signals include signals having a valid common mode voltage level.

4. A method according to Claim 3, wherein a logic gate receives an output signal from said signal detector and performs said selecting of either of said external data signals or said test signals for transmitting from said multiplexer to said laser driver based on the received signal, a soft BIST signal and a hard BIST signal.

5. A method according to Claim 3, wherein said signal detector is a pull-down detector.

6. A method according to Claim 4, wherein said selecting, performed by said logic gates, of either of said external data signals or said test signals for transmitting from said multiplexer to said laser driver includes selecting either of the received signal or BIST data if the received signal is a valid signal and the soft-BIST signal is present, and further includes selecting BIST data if the hard-BIST signal is present or the received signal is not a valid signal and the soft-BIST signal is present.

7. A parallel optical communication transmitter testing system, comprising:

a test signal buffer that buffers test signals that are received from a test signal generator;

a data receiver that buffers external data signals that are received from a communication transmitter;

a signal detector that buffers said external data signals from said communication transmitter,

wherein said signal detector receiving said external data signals is in parallel with said data receiver, and

wherein said signal detector detects whether said external data signals include signals having a valid common mode; and

a multiplexer that receives said external data signals from said data receiver and said test signals from said test signal buffer and that transmits either of said external data signals and said test signals to a laser driver.

8. A system according to Claim 7, wherein said test signal generator is a built-in self test (BIST) generator.

9. A system according to Claim 7, further comprising logic gates that receive an output signal from said signal detector and select either of said external data signals or said test signals for transmission from said multiplexer to said laser driver using the received signal, a soft-BIST signal and a hard-BIST signal.

10. A system according to Claim 9, wherein said logic gates select, for transmission from said multiplexer to said laser driver, either of the received signal or BIST data if the received signal is a valid signal and the soft-BIST signal is present, and further select BIST data if the hard-BIST signal is present or the received signal is not a valid signal and the soft-BIST signal is present.

11. A system according to Claim 7, wherein said signal detector is a pull-down detector.